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IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-2 (Canceled):

Claim 3 (Currently Amended): A method of processing a semiconductor device ~~according to claim 1, wherein the laser beam is polarized in P-polarization and the window~~, comprising the steps of:

generating plasma in a processing chamber to form or to process a thin film on a semiconductor device;

scanning an intensity modulated P-polarized laser beam inside the processing chamber through a window of the processing chamber which has a Brewster's angle relative to the P-polarized laser beam where the semiconductor device is being processed by the plasma;

receiving, by a sensor through the window of the processing chamber, a back scattered light scattered from fine particles suspended inside the processing chamber by scanning the laser beam, the back scattered light being scattered at different portions along an optical axis of the laser beam and respectively received by the sensor;

detecting a desired frequency component from a signal outputted from the sensor;

obtaining information from a detected frequency component relating to a quantity, a size and a distribution of fine particles illuminated by the laser beam inside the processing chamber; and

outputting obtained information relating to the quantity, the size and the distribution of the fine particles.

Claim 4 (Currently Amended): A method of processing a semiconductor device ~~according to claim 1, wherein the obtained information involves~~, comprising the steps of:

generating plasma in a processing chamber to form or to process a thin film on a semiconductor device;

scanning an intensity modulated laser beam inside the processing chamber through a window of the processing chamber where the semiconductor device is being processed by the plasma;

receiving, by a sensor through the window of the processing chamber, a back scattered light scattered from fine particles suspended inside the processing chamber by scanning the laser beam while cutting off light reflected from a wall of said processing chamber, the back scattered light being scattered at different portions along an optical axis of the laser beam and respectively received by the sensor;

detecting a desired frequency component from a signal outputted from the sensor;

obtaining information from a detected frequency component relating to a quantity, a size and two dimensional distribution information of the fine particles along an optical axis and a scan direction of the laser beam inside the processing chamber; and

outputting obtained information relating to the quantity, the size and the distribution of the fine particles.

Claim 5 (Canceled):

Claim 6 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim [[1]]4, wherein the desired frequency component for modulating the laser beam is different from a frequency for generating the plasma inside the processing chamber.

Claim 7 (Currently Amended): A method of processing a semiconductor device, comprising the steps of:

coating a resist on a surface of a substrate;

exposing the resist coated on the substrate with a desired light pattern;

developing the exposed resist;

processing the substrate with plasma and the surface of the substrate is partially covered with the developed resist; and

removing the resist coated on the substrate on which patterns are formed;

wherein in the processing step, the substrate is processed in a processing apparatus and a laser beam is scanned inside the processing apparatus through a window of the processing apparatus and a back scattered light from fine particles by the scanned laser beam is detected through the window, the back scattered light being scattered at different portions along an optical axis of the laser beam and respectively detected through the window to obtain two dimensional distribution

information of fine particles along the optical axis and the scan direction of the laser beam inside the processing chamber.

Claim 8 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 7, wherein information of distribution of fine particles suspending inside the processing apparatus is obtained from the back scattered light.

Claim 9 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 7, wherein an intensity of the laser beam scanning inside the processing apparatus is modulated at a desired frequency.

Claim 10 (Canceled):

Claim 11 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim [[10]]13, wherein an intensity of said laser beam scanning inside said plasma etching apparatus is modulated at a desired frequency.

Claim 12 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim [[10]]13, wherein information regarding sizes and distribution of fine particles suspended inside said plasma etching apparatus is obtained from the back scattered light at different portions along the optical axis of the laser beam on the substrate.

Claim 13 (Currently Amended): A method of processing a semiconductor device, ~~according to claim 10, wherein~~ comprising the steps of:

forming a thin film on a substrate;

coating a resist on the substrate on which the thin film is formed;

exposing the resist with a light pattern by using an exposing apparatus;

etching the thin film on which the resist is developed and forming hole patterns by using a plasma etching apparatus; and

removing the resist coated and developed on the substrate on which the hole patterns are formed in the thin film;

wherein in said etching step, a laser beam is scanned inside the plasma etching apparatus where a plasma is generated and a back scattered light from fine particles suspended inside the plasma etching apparatus is detected by a sensor separated from light reflected from a wall of the plasma etching apparatus, the back scattered light being scattered at different portions along an optical axis of the laser beam and respectively received by the sensor and two dimensional distribution information of fine particles suspended inside the plasma etching apparatus is obtained from the back scattered light at different portions along the optical axis of the laser beam on the substrate.

Claim 14 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 13, wherein the two dimensional distribution information includes a distribution of fine particles along an optical axis and a scan direction of the laser beam.

Claim 15 (Curr ntly Amended): A method ~~of processing a semiconductor device~~ according to claim 13, wherein the two dimensional distribution information regarding the distribution of fine particles is displayed on a monitor.

Claim 16 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 13, wherein information regarding contamination inside the plasma etching apparatus is obtained from the back scattered light at different portions along the optical axis of the laser beam on the substrate.

Claim 17 (Currently Amended): A method of processing a semiconductor device comprising the steps of:

loading a substrate into a chamber of a plasma etching apparatus, on a surface of the substrate, a resist pattern is formed;

evacuating inside the chamber in which the substrate is loaded and supplying a process gas inside the chamber;

applying high frequency power to an electrode of the plasma etching apparatus and generating plasma inside the chamber;

processing the substrate with plasma;

illuminating a laser beam inside the chamber through a window of the plasma etching apparatus and detecting through the window a back scattered light generated by fine particles suspended inside the chamber, the back scattered light

being scattered at different portions along an optical axis of the laser beam and respectively detected through the window and obtained two dimensional distribution information of fine particles at different portions along the optical axis of the laser beam on the substrate; and

unloading the substrate from the plasma etching apparatus after stopping supply of the process gas and evacuating the process gas from inside the chamber.

Claim 18 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 17, wherein an intensity of the laser beam illuminated inside the chamber is modulated at a desired frequency.

Claim 19 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 17, wherein information is obtained from the back scattered light regarding fine particles suspended inside the chamber.

Claim 20 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 19, wherein obtained information regarding the fine particles is information regarding sizes and distribution of fine particles suspended inside the chamber.

Claim 21 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 20, wherein said information regarding sizes and distribution of fine particles suspended inside the chamber is displayed on a monitor.

Claim 22 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 17, wherein, based on a detection signal detected from light scattered by said fine particles, information regarding contamination status inside the plasma etching apparatus is obtained.

Claim 23 (Currently Amended): A method ~~of processing a semiconductor device~~ according to claim 17, wherein information regarding contamination inside the plasma etching apparatus is obtained from the back scattered light.

Claim 24 (Previously Presented): A method of processing a semiconductor device, comprising:

generating plasma in a processing chamber to form a thin film on a semiconductor device or to process a thin film formed on a semiconductor device;

scanning an intensity modulated laser beam that is polarized inside the processing chamber through an observation window of the processing chamber arranged at a Brewster's angle relative to the laser beam; and

obtaining two dimensional distribution information of fine particles by respectively detecting a back scattered light from fine particles suspended inside the processing chamber at different portions along an optical axis of the laser beam on the semiconductor device.

Claim 25 (Previously Presented): A method according to claim 24, wherein the two dimensional distribution information of fine particles includes a quantity, a size and a distribution of fine particles along an optical axis and a scan direction of the laser beam.